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EXAMINER

JARRETT, SCOTT L

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/760,339

Applicant(s)

CHAPPEL ET AL.

Examiner

Scott L. Jarrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-24 and 26-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-24 and 26-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/3/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This **Final** Office Action is responsive to applicant's amendment filed January 31, 2005. Applicant's amendment of January 31, 2005 amended claims 1-5, 7-24 and 26-28 and canceled claims 6 and 25. Currently claims 1-5, 7-24 and 26-28 are pending.

Response to Amendment

2. Applicant's arguments filed on January 31, 2005 with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite and failing to point out and distinctly claim the subject matter which the applicant regards as the invention.

Regarding Claims 7 and 22, claims 7 and 22 recite the limitation "the stability of a project" in Claims 1 and 20 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paul et al., Software Metrics Knowledge and Databases for Project Management (January 1999) in view of Wiegers, Karl, Automating Requirements Management (1999).

Regarding Claims 1, 20 and 28 Paul et al. teach method and system for analyzing and assessing the status (progress) of a project ("...metrics combined with a selection of powerful tools, and true integration of these metrics and tools forms the foundation of efficient and robust software project management."; Column 2, Paragraph 1, Page 265). Paul et al. further teach that "...metrics can be divided into three broad categories: management, requirements, and quality." (Column 2, Paragraph 3, Page 256). Paul et al. further teach that "Requirements and specifications may change several times during product development." and that metrics are needed to understand, track and manage these and other project changes including the measures of "...requirements traceability and requirements stability" (Column 2, Paragraph 5, Page 256; Figure 2, Page 259).

More specifically Paul et al. teach that the method and system for determining the status (progress) of a project further comprises:

- the selection, collection, use and computation of a plurality (at least two) of project metrics (parameters) and data, including but not limited to project progress metrics and their associated data (Section 2 - Test & Evaluation Metrics Data, Columns 3-4);

- the use of data integration and analytical techniques, including multiple regression analysis, on a plurality of metrics in order to conduct quality and risk assessments (project status, Section 2.1.2 Regression and Principal Component Analysis, Page 260; Figure 3);

- a plurality of techniques, including regression analysis and principal component analysis, to identify the correlation among a plurality of metrics thereby determining their interdependencies (Section 2.1.2, Page 260); and

- the utilization of requirement specifications/documents ("Find the total number of relational requirements documents."; Table 1, Page 258; Column 2, Paragraphs 3-6, Page 256).

Paul et al. does not expressly teach the use or computation of correlation coefficients, the representation of a requirements document utilizing branches and leaves or that the system utilizes a network.

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Wiegiers teaches a plurality of commercially available requirements management systems that represent requirement documents utilizing branches and leaves ("hierarchical requirement trees"; Paragraph 3, Page 3) and are Internet enabled (computer network; Table 2). Wiegiers teaches a plurality of commercially available requirements management methods and systems wherein the systems enable users to manage a plurality of project artifacts (e.g. requirement specifications, design documents and the like; Reasons to Use a Requirements Management Tool, Pages 1-2).

Wiegiers further teaches that the requirements management systems further comprise:

- tracking and reporting project data (status; "Tracking the status of each requirement during development supports overall project status tracking."; Paragraph 3, Page 2);
- collecting a plurality of project requirement metrics ("...status, priority, cost, stability, and risk."; Paragraph 1, Page 2);
- integrating with "problem tracking and project management tools" (e.g. Microsoft Project; Paragraph 10, Page 2; Paragraph 1, Page 3); and
- support for the import, export and parsing of a "rich variety" of file formats (Paragraph 7, Page 2).

More generally Wiegiers teaches that these tools have a common set of features and capabilities including but not limited to (Table 2, Page 6):

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- the representation of requirement specifications as “hierarchical requirement trees” (Paragraph 3, Page 3);
- integrating with project management tools (e.g. Microsoft Project; Paragraph 1, Page 3);
- user defined requirement attributes (Paragraph 7, Page 1);
- Internet integration (Table 2);
- the utilization of a database to store, query and view collected project data (Paragraph 3, Page 1); and
- parsing a source document to load requirements into a database (Table 2).

Further as per applicant's own admission the representation of requirement specifications (documents) consisting of branches and leaves is old and well known (“...a leaf, unambiguously, a subsection of a branch. The IEEE 1998-830 standard, a widely used requirements template provides an example of this structure.”;

Specification: Page 2, Lines 16-23; Page 3, Lines 1-9).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for determining the status of a project, specifically its utilization of project management tools (“...metrics combined with a selection of powerful tools...forms the foundation of efficient and robust software project management.”; Column 2, Paragraph 1, Page 265), as taught by Paul et al. would have utilized a commercially available requirements management system (tool) with their

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ability to manage hierarchical requirements tree over a computer network in view of the teachings of Wiegers; the resultant system enabling the user to improve their requirements management practices (Wiegers: Paragraph 1, Page 5) and increasing their ability to track the status of the project.

Official notice is taken that it is old and well known in the art that regression analysis is a common and well known technique for determining the relationship between several independent or predictor variables and a dependent or criterion variable and that the degree to which two or more predictors are related to the dependent variable is expressed in the correlation coefficient. The regressions analysis, further comprising the use of correlation coefficients, providing knowledge of the interdependencies can be crucial in predicting the extent perturbations brought about by any failures or changes in the project (Section 2.1.2, Page 260).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project wherein analyzing the metrics was conducted through the use of statistical regression analysis techniques, as taught by Paul et al., would have included the calculation of correlation coefficients. The benefit of such regression analysis being to further assist project managers with the critical management decisions regarding risk and quality during the life cycle of a software project (Section 3 – Conclusion, Page 263).

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Regarding Claims 2 and 21 Paul et al. teach the use of a plurality of project progress and product metrics for use in analyzing and assessing the status (progress) of a project. Further Paul et al. teach determining the total number of relation requirements document (Column 2, Paragraphs 3-6, Page 256) and the use of classification trees (Section 2.1.4, Page 261-262) for the classifying of a plurality of metrics (Column 1, Paragraph 2, Page 262).

Paul et al. does not teach the use of the specific project progress parameters as claimed.

Wieggers teaches that the commercially available requirements management systems collect, store and analyze a plurality of requirement metrics and attributes including but not limited to the date created, version number (i.e. number of revisions), status, stability; origin, percent implemented, percent verified, etc. (Paragraph 7, Page 1 and Paragraphs 1-4, Page 2).

More specifically Wieggers teaches that the project progress parameters include at least one of the following (Paragraph 7, Page 1 and Paragraphs 1-4, Page 2):

- total number of branches and leaves (number of sections, number of requirements; inherent in the percent of requirements implemented, number implemented/total number of requirements);
- number of modifications performed on the branches and leaves (version number of the requirement); and

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- average age of the branches and leaves (date created).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirements management systems with their ability to collect, store and analyze a plurality of project progress parameters including at least one of the following metrics the number of requirements, the number of revisions per requirement and the date that the requirement was created in view of the teachings of Wiegers provides the user with a more accurate and complete understanding of the progress of a project therefore assisting project managers with the critical management decisions regarding risk and quality during the life cycle of a project (Paul et al., Section 3 – Conclusion, Page 263).

Regarding Claims 3 and 22 Paul et al. does not expressly teach the regression equations to be used when analyzing the collected metrics data.

Official notice is taken that the regression equations as claimed are old and well known in the art as being among a plurality of equations and approaches available for statistical regression analysis. Accordingly, it would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. would benefit from the use of any of the plurality of well known and accepted regression analysis techniques and

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equations, including the equations as claimed, when analyzing the metric data collected in order to provide insight into the progress of a project.

Regarding Claims 4 and 23 Paul et al. teach the use of a database for the collection, storage and analysis of software project progress parameters (metrics; Title; Paragraph 1, Page 256).

While it is well known and well established that the use of databases by their very definition involve the storage and access (insert, update, delete, etc.) of the data stored within it Paul et al. does not expressly teach updating of at least one database.

Wiegers teaches that the plurality of commercially available requirement management tools update at least one database with data records generated from performing a statistical analysis on the collected data ("... sort, filter or query database"; Paragraph 4, Page 2; Paragraph 7, Page 1; Paragraphs 1-2, Page 2; Paragraph 4, Page 3) and that "A commercial requirements management tool that stores requirements in a multi-user database provides a more robust solution." (Paragraph 4, Page 1; Table 2).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available

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requirements management systems with their ability to collect, store and analyze a plurality of project progress parameters in a database, in view of the teachings of Wiegers provides the user with a more accurate and complete understanding of the progress of a project therefore assisting project managers with the critical management decisions regarding risk and quality during the life cycle of a project (Paul et al., Section 3 – Conclusion, Page 263).

Regarding Claims 5, 10, 11 and 24 Paul et al. teach the use of a database to collect, store, read, write and analyze project progress parameters as discussed above.

While it is well known and well established that database management systems frequently utilize computer networks Paul et al. does not expressly teach receiving data across a network.

Wiegers teaches a plurality of commercially available requirements management systems (tools) wherein the systems utilize databases (“A commercial requirements management tool that stores requirements in a multi-user database provides a more robust solution.” (Paragraph 4, Page 1; Table 2) and are Internet enabled (computer network; “Includes web interface for database query, discussion and perhaps updating requirement attributes”; Table 2; “The heterogeneous client/server implementation...”; Paragraph 5, Page 3).

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It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirement management systems (tools) with their ability to collect, store, analyze and access over the Internet a plurality of project progress parameters in view of the teachings of Wiegers provides the user with a more accurate and complete understanding of the progress of a project therefore assisting project managers with the critical management decisions regarding risk and quality during the life cycle of a project (Paul et al., Section 3 – Conclusion, Page 263).

Regarding Claims 7, 15 and 26 Paul et al. does not teach outputting the data records to graphically represent the progress of a project.

Wiegers teaches that the plurality of commercially available requirements management systems and methods comprise the ability to graphically display any of a plurality of project progress metrics including but not limited to such metrics as stability, progress and the like (“...color coded bars that indicate a requirement’s status...”, Paragraph 4, Page 3; “...can also communicate with Microsoft Project to connect individual requirements to project tasks.”, Paragraph 1, Page 3; Microsoft Project being well known to comprise a plurality of graphical representation regarding the progress of projects; “...incorporate non-textual objects such as Microsoft Excel worksheets and images into the requirements.”, Paragraph 9; Page 2).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirements management systems with their ability to collect, store, analyze and graphically display a plurality of project progress parameters in view of the teachings of Wiegers provides the user with a more accurate and complete understanding of the progress of a project therefore assisting project managers with the critical management decisions regarding risk and quality during the life cycle of a project (Paul et al., Section 3 – Conclusion, Page 263).

Regarding Claims 8, 19 and 27 Paul et al. teach that use of a plurality of project documents (at least one), including but not limited to the utilization of requirement specifications/documents (“Find the total number of relational requirements documents.”; Table 1, Page 258; Column 2, Paragraphs 3-6, Page 256) and project components for which project progress parameters are to be collected and analyzed.

More generally Paul et al. further teach that “...metrics can be divided into three broad categories: management, requirements, and quality.” (Column 2, Paragraph 3, Page 256) and that “Requirements and specifications may change several times during product development.” therefore metrics are needed to understand, track and manage these and other project changes including the measures of “....requirements traceability and requirements stability” (Column 2, Paragraph 5, Page 256; Figure 2, Page 259).

Regarding Claim 9 Paul et al. teach a method and system for collecting, storing, analyzing/assessing a plurality of project progress metrics as discussed above.

Paul et al. does not teach that the project data has a tree structure (branches and leaves) or the subsequent parsing of the tree project data as claimed.

Wiegers teaches a plurality of commercially available requirements management systems wherein the systems further represent the project requirements (project data) utilizing a tree structure and the subsequent parsing of the project data ("...parse an SRS..."; Paragraph 8, Page 2; "Parses a source document to load requirements into database"; Table 2, Row 1). Wiegers further teaches the collection, storage, analysis and graphical display of a plurality of project metrics as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirements management systems with their ability to collect, store, analyze and graphically display a plurality of project progress parameters and parse structured project data into and out of a database in view of the teachings of Wiegers provides the user with a more accurate and complete understanding of the progress of a project therefore assisting project managers with the critical management decisions regarding

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risk and quality during the life cycle of a project (Paul et al., Section 3 – Conclusion, Page 263).

Regarding Claim 12 Paul et al. teach the use of regression analysis as a means for assessing and analyzing project progress and trends (Paragraph 1, Page 260). Paul et al. further teaches a method and system for assessing and analyzing the progress of a project wherein attention is paid to the resources to be allocated, having been allocated or available for a project are considered over time (Paragraph 4, Page 256; Paragraph 2, Page 260; Conclusion, Page 263).

Paul et al. is silent on the frequency of the project progress assessments and forecasts.

Official notice is taken that the frequency of assessing and analyzing the progress of a project is arbitrary and based on the individual preferences, legal/contractual project requirements, experiences, project size, scope and duration or any of a plurality other guidelines or schedules. Each assessment and analysis providing the user with an opportunity to make decisions related to the management of the project's progress, including the balancing of available and utilized resources.

It would have been obvious to one skilled in the art at the time of the invention to utilize the method and system for analyzing and assessing the progress of a project as

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taught by Paul et al. in any desired frequency including but not limited to the daily project progress assessment and forecast, in view of the teachings of official notice, wherein the daily analysis and assessment would providing insight (forecasts) into a project progress and offer an opportunity to effect any of a plurality project progress parameters including the rebalancing of project resources on a daily basis thereby providing the user with an opportunity to make decisions and positively effect progress of a project.

Regarding Claim 13 Paul et al. teach the essentially temporal nature of the system and method for analyzing and assessing the progress of a project (“...metric data is the temporal one.”; Column 1, Paragraph 3, Page 255). More specifically Paul et al. teach periodic queries (assessments) can provide timely and accurate information leading to good management decisions. Further Paul et al. teaches the dominant dimension of metrics data as being a temporal one (Section 1.1 – Simple Queries on Software Metrics, Page 255).

Regarding Claim 14 Paul et al. teach a plurality of techniques, including regression analysis, to identify the correlation among a plurality of metrics thereby determining their interdependencies as discussed above.

Regarding Claim 16 Paul et al. does not teach representing data records as objects.

Wiegiers teaches a plurality of commercially available requirements management systems wherein several of the systems represent data records as objects (“...treats individual requirements as objects... Doors stores the change history of individual objects, modules...”; Paragraph 4, Page 3; “...treats requirements as objects....”; Paragraph 5, Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirement management systems (tools) with their ability to treat project data as objects, objects being a well known way for modeling systems and documents, in view of the teachings of Wiegiers provides the user with an efficient means for managing the plurality of artifacts (objects) in the project.

Regarding Claim 17 Paul et al. method and system for analyzing and assessing the progress of a project wherein a plurality of metrics and documents are utilized as discussed above.

While it is the use of content mark up languages to represent documents (text/content) in programs such as word processors (e.g. SGML) and Internet browsers

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documents (HTML) is well known Paul et al. does not expressly teach that the project is formatted according to a content markup language.

Wieggers teach that the plurality of Internet enabled requirements management systems provide users with the ability to manage of a plurality of project data including but not limited to a plurality of documents (e.g. code, designs, tests, use cases, requirements, etc.; Paragraphs 1-3, Page 1; Paragraphs 9-10, Page 2). Wieggers further teaches that the requirements management systems integrate with a plurality of well known document creation and manipulation tools (Microsoft Word, Microsoft Excel, etc.), "support a rich variety of import and export file formats" (Paragraph 7, Page 2) and provide document parsing capabilities (Table 2).

It would have been obvious to one skilled in the art at the time of the invention that the method and system for analyzing and assessing the progress of a project as taught by Paul et al. coupled with any one of the plurality of commercially available requirements management systems with their ability to manage a plurality of project data (documents utilizing a content markup language format being well known), in view of the teachings of Wieggers provides the user with an efficient means for managing, sharing and representing (formatting, displaying, etc.) the plurality of documents and other project data in the project.

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Regarding Claim 18, claim 18 recites similar limitations to Claim 1 and is therefore rejected using the same art and rationale as applied in the rejections of Claim 1.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Eiche et al., U.S. Patent No. 6,715,130, teach a method and system for estimating metrics of a proposed product from a document (requirements document) describing the product. Eiche et al. further teach the use of software requirement specifications (requirement documents) wherein the document is represented utilizing branches and leaves (hierarchical, tree), stored in a database over a network and is parsed.

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- Rational.com web pages teaches the commercially available Rational RequisitePro requirements management system and method. Rational further teaches that the RequisitePro requirements management system provides a method for determining the status of a project wherein the status is determined based on the a plurality of management reports and "requirement metrics" including but not limited to stability, progress, status, risk, and a plurality of other factors of a requirements document and further wherein the requirements document is represented (structured) as branches and leaves (tree). Rational further teaches that the requirements management system in Internet enabled, utilizes any of a plurality of commercially available databases.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (703) 306-5679. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (703) 305-9643. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SJ
4/5/2005



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